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HYPNUM OCCIDENTALE S. & L.

In Bull. Torr. Club, 17:277. 1890, N. C. Kindberg described *Thuidium Vancouveriense* as a new species from Vancouver Island. In Cat. Can. Plants, 6:183. 1892, the same plant is described as *Heterocladium Vancouveriense*, and in Eur. & N. Amer. Bryineæ it is referred to the author's new genus, *Pseudoleskella*. It turns out, however, that this supposed new species, which has done good service in three genera in no less than six years, is identical with *Hypnum occidentale* S. & L., described and figured in Icon. Musc. Supp. 105. pl. 81. 1874, as an authentic specimen from Dr. Kindberg, which I owe to the kindness of Prof. J. M. Holzinger, and a portion of Sullivant's type, which I owe to the courtesy of Mrs. Britton, clearly prove. *Thuidium Vancouveriense* must therefore be relegated to the long list of synonyms for which we have to thank our worthy trans-atlantic confreres, and which might easily have been avoided, had all of them been as anxious to ascertain what American bryologists have done, as some of them have been eager to make new species of American mosses.—G. N. Best.

LICHENS—THE USNEAS.

In commencing our study of lichens, it has been thought best to begin with *Usnea* and some of the varieties, as they are so generally called mosses.

The so-called Florida moss which grows so luxuriantly on the trees in the Southern States, is often supposed to be a lichen. It is, in fact, a flowering plant, and belongs to the Bromeliaceae, or Pineapple family. Its botanical name is *Tillandsia usneoides*, the specific name indicating its resemblance to *Usnea*.

Some botanists think lichens are only a higher order of fungi, others who have studied them closely accord them a place by themselves, between the fungi and mosses.*

A lichen is composed of an alga and a fungus, the alga supplying chlorophyll or green matter, the fungus absorbing moisture from the atmosphere and mineral substances from the substratum. The two live together in what is called a symbiotic relationship, the one necessary to the life and development of the other.

As this article is intended for beginners in the study of these interesting plants, a few definitions of the principal parts of *Usnea* may be helpful.

The *thallus* is the vegetative portion, taking the place of the stem and branches in the flowering plants. In *Usnea* it is fruticose or shrub-like. In some species it is erect and rather rigid, in others it is pendulous and soft, and through the centre runs a white cottony substance which is called the medullary cord.

Fibrils are the fine hair-like branches found on the main thallus. In some species these are stiff, in others they are soft. Fibrils are also found on the margin of the apothecia.

* Instructions for collecting and mounting lichens can be found in Asa Gray Bulletin, Vol. VI, No. 1, February, 1898.

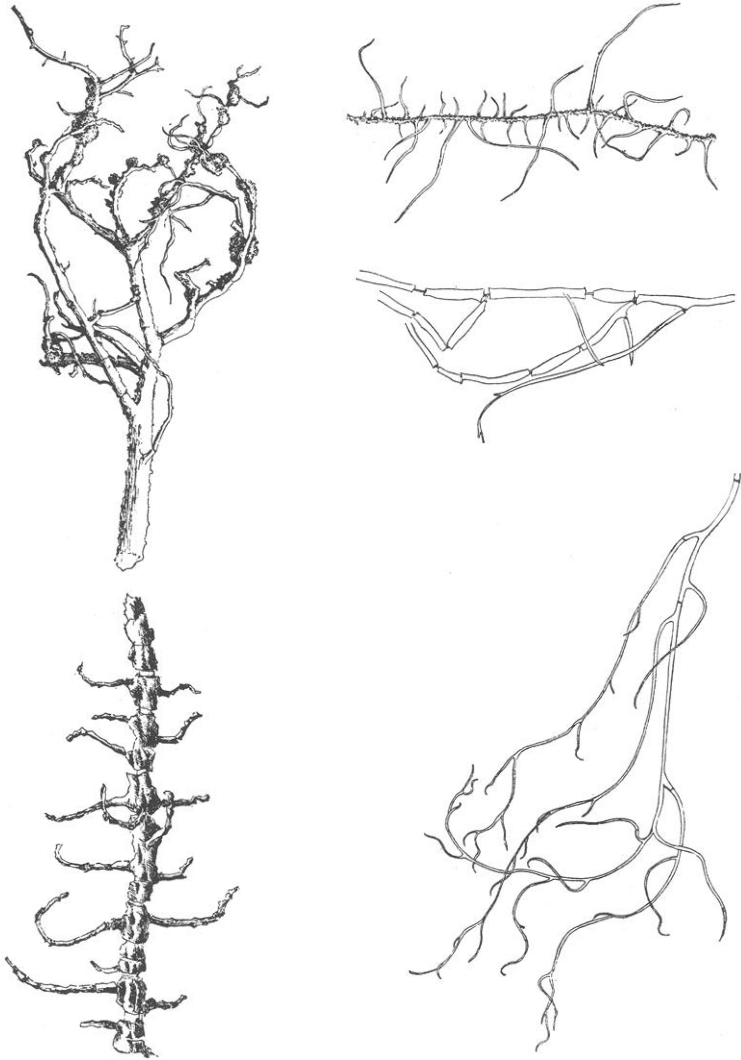


Plate I. On the left: upper, branch of *Usnea barbata hirta* x 5 showing soredia; lower, portion of *U. angulata* x 5. On the right: upper, portion of *U. longissima* x 2; middle, of *U. articulata* x 2; lower, of *U. trichodea* x 2.

The *apothecia*, which are developed on the thallus, are the fruit bodies, and contain the spores. Their form is dish-like, scutellaeform. They are a delicate flesh-color, and on the margins are long fibrils.

Soredia are vegetative bodies appearing on the thallus as pale green, mealy-looking objects. They are composed of a few algal cells and threads of hyphae. These soredia, in dry weather, are easily detached, and if conditions are favorable, develop into lichens.

The most common form belonging to this genus, is

Usnea barbata (L.) Fr. var. *florida* Fr. It grows all over the world on dead trees, sometimes on those which are still living, but are probably diseased, and on old fence rails. The thallus, which is light green, is not smooth, but is covered with fine points. Many lichenists call it scurfy, but it is pimply, rather. From the main thallus are fine, rather stiff fibrils. It is firmly attached to the substratum by a more or less spreading base. From this it branches, giving it a shrubby appearance. The apothecia are a pale flesh-color, quite large, surrounded by long greenish fibrils. While the apothecia are not rare, many specimens will be found which are sterile, but can be determined by the appearance of the thallus and habit of growth.

Usnea barbata (L.) var. *hirta* Fr. is much like *florida*, and often grows on the same tree. It can be distinguished by the soredia with which it is usually thickly covered.

Usnea barbata (L.) Fr. var. *rubiginea* Michx. is very similar to *hirta*, but is a dull red. In some specimens the soredia give it a silvery look.

Usnea barbata (L.) Fr. var. *ceratina* Schaer. is a pendulous species. It is rather stiff and coarse, has longer branches than *florida*, and no fine fibrils.

Usnea barbata (L.) Fr. var. *articulata* Ach. is also pendulous and light green. The thallus, while not smooth, is less scurfy than the other varieties of *Usnea barbata*. It is broken into short pieces or joints, between these can be seen the medullary cord.

Usnea angulata Ach. as the name indicates, is angled, the thallus and fibrils appearing like a miniature branch of cork elm. It is pendulous and rather rigid, is a darker, duller green than the other species of *Usnea*.

Usnea trichodea Ach. has a soft pendulous thallus, which is a light gray-green, with few branches somewhat interlaced. The apothecia are small.

Usnea longissima Ach. is a mountain species. The thallus is pendulous and soft. It is pale green, the main thallus almost white, with many short, fine fibrils a little darker in color. It hangs from the dead spruces in the Adirondacks, three or more feet in length. After drying it is almost a straw-color.

There are a few more species of *Usnea*, but these given are the common ones.

Like the mosses, the different species of lichens are so closely allied that it is often difficult to decide to which species a given specimen belongs. After the genera are learned, every new species determined is a joy to one really interested in these curious, much-neglected, but beautiful plants.

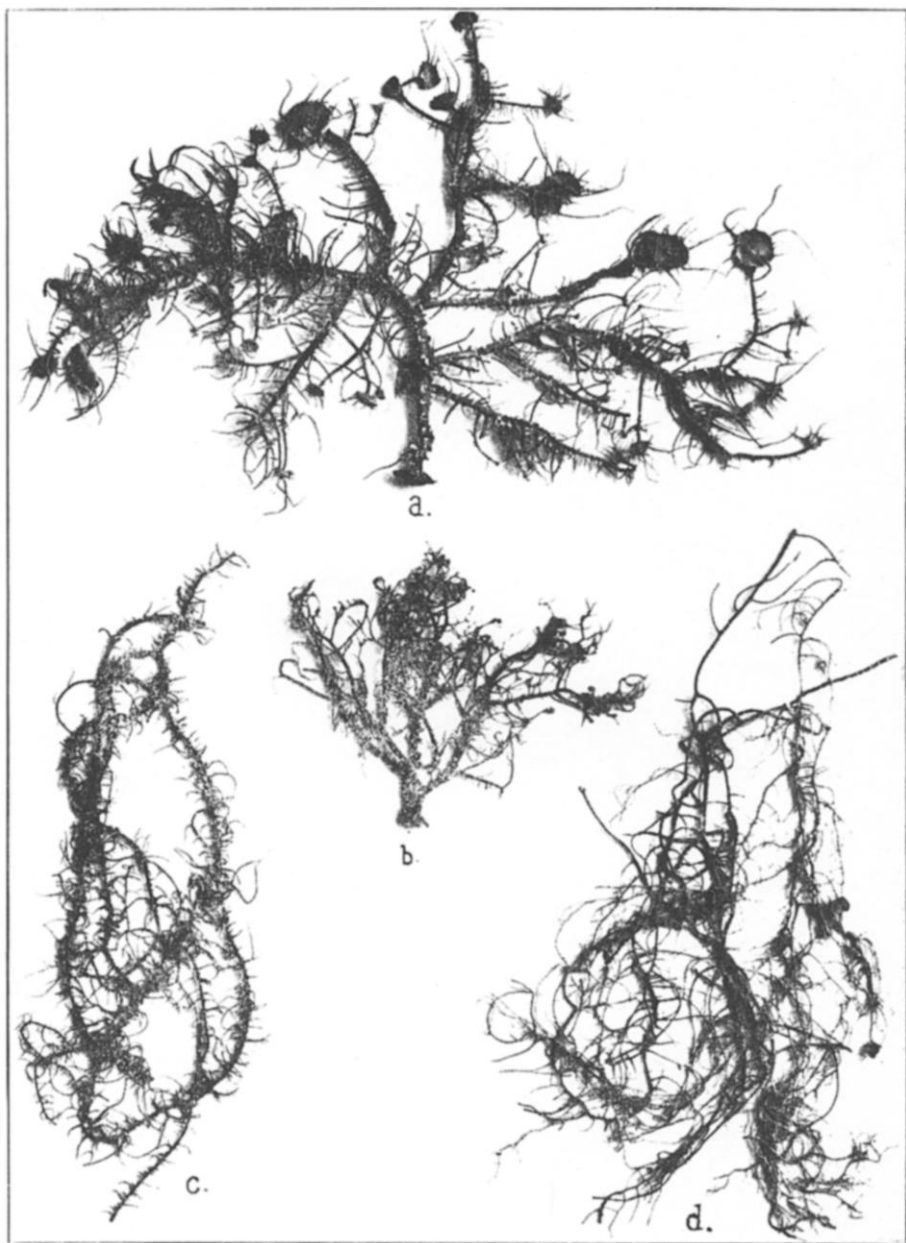


Plate II. a. *Usnea barbata florida*. b. *U. barbata hirta*. c. *U. angulata*. d. *U. trichodea*.
(Photographed natural size by Leon E. Grout.)